

BIO392-cnv-freq

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Step 1: Install package

```
if (!require(devtools)){install.packages("devtools")}

## Loading required package: devtools
## Loading required package: usethis
if (!require(pgxRpi)){devtools::install_github("progenetix/pgxRpi")}

## Loading required package: pgxRpi
library(pgxRpi)
```

Step2: Search esophageal adenocarcinoma NCIt code

Step3: Access the CNV frequency data from samples with esophageal adenocarcinoma

```
freq <- pgxLoader(type = "frequency", output = "pgxseg", filters = "NCIT:C9245", codematches = T)
```

The retrieved data is an object containing two slots meta and data.

The meta slot looks like this:

```
freq$meta

##           code                label sample_count
## 1 NCIT:C9245 Invasive Breast Carcinoma          3796
## 2      total                                3796
```

The data slot includes two matrices.

```
names(freq$data)

## [1] "NCIT:C9245" "total"
```

The frequency matrix looks like this

```
head(freq$data$"NCIT:C9245")
```

| | filters | reference_name | start | end | gain_frequency | loss_frequency | no |
|------|------------|----------------|---------|---------|----------------|----------------|----|
| ## 1 | NCIT:C9245 | 1 | 0 | 400000 | 3.556 | 1.923 | 1 |
| ## 2 | NCIT:C9245 | 1 | 400000 | 1400000 | 4.531 | 8.667 | 2 |
| ## 3 | NCIT:C9245 | 1 | 1400000 | 2400000 | 2.792 | 7.719 | 3 |
| ## 4 | NCIT:C9245 | 1 | 2400000 | 3400000 | 5.269 | 35.643 | 4 |
| ## 5 | NCIT:C9245 | 1 | 3400000 | 4400000 | 4.373 | 34.905 | 5 |
| ## 6 | NCIT:C9245 | 1 | 4400000 | 5400000 | 4.426 | 36.170 | 6 |

Dimension of this matrix

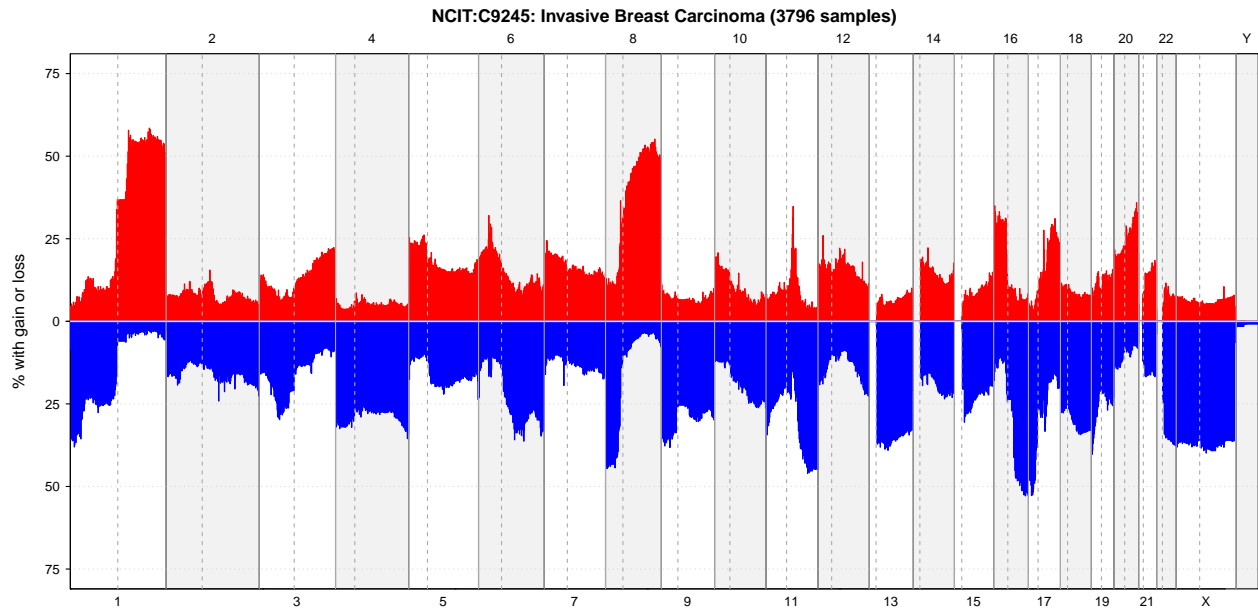
```
dim(freq$data$"NCIT:C9245")
```

```
## [1] 3106    7
```

Step4: Visualize data

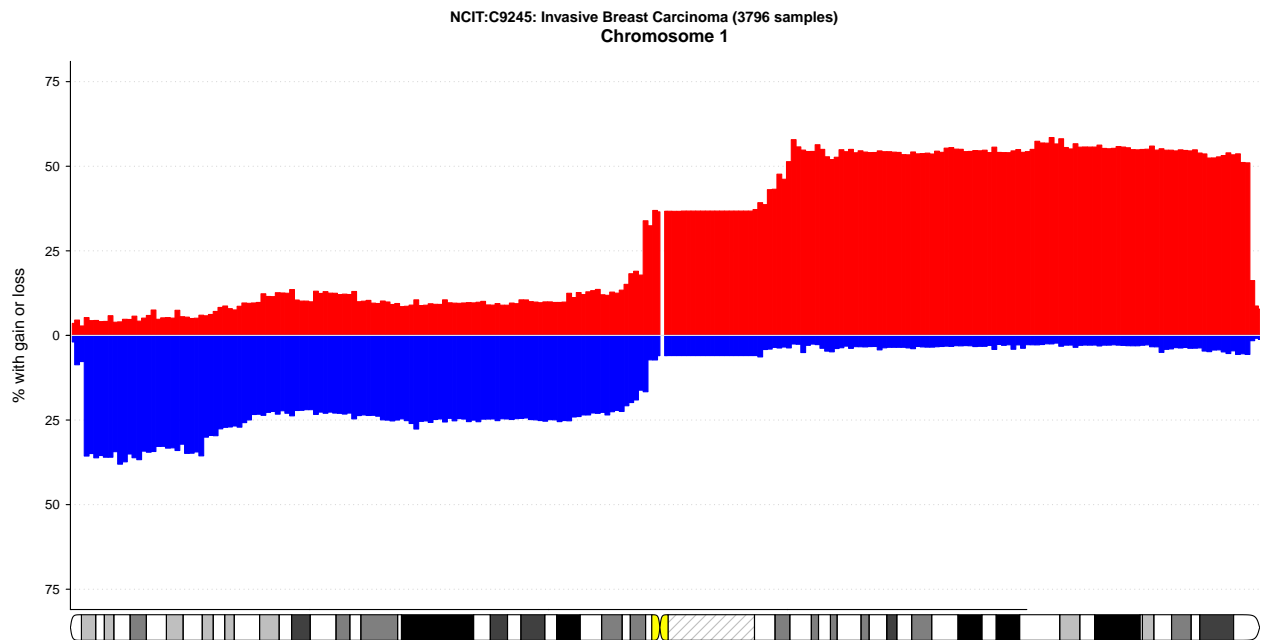
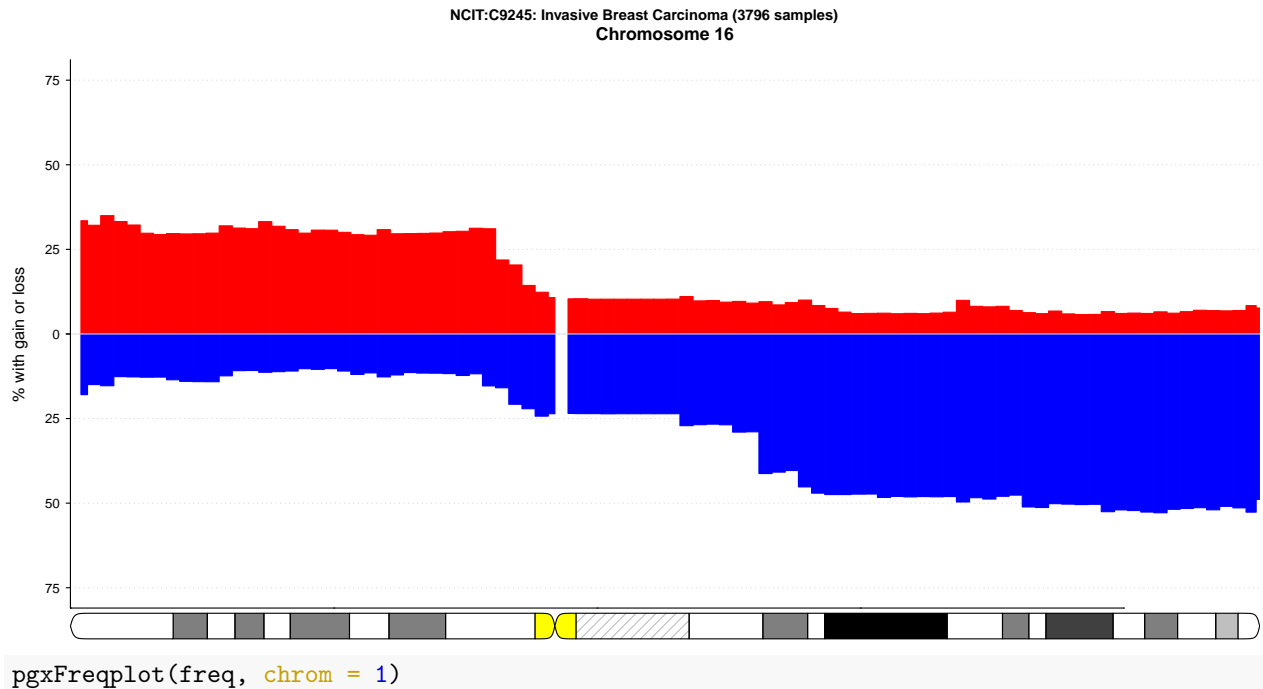
By genome

```
pgxFreqplot(freq)
```



By chromosome

```
pgxFreqplot(freq, chrom = 16)
```



Step5: Analyse the data

According the plot, we can see frequent gains on chromosome 1p, 8p, 16q, 20p and frequent losses on chromosome 1p, 8p, 11q, 13p, 16p and X both.

But on chr 16 more losses than gains. Chr 1q and 8q have many gains.